

# Olivehurst Avenue Specific Plan

## Phase I

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Prepared by  
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For  
YUBA COUNTY DEPARTMENT OF PLANNING  
AND BUILDING SERVICES

JULY 25, 1994





Olivehurst Avenue Specific Plan  
Phase I

DRAFT

# Olivehurst Avenue Specific Plan

## Phase I

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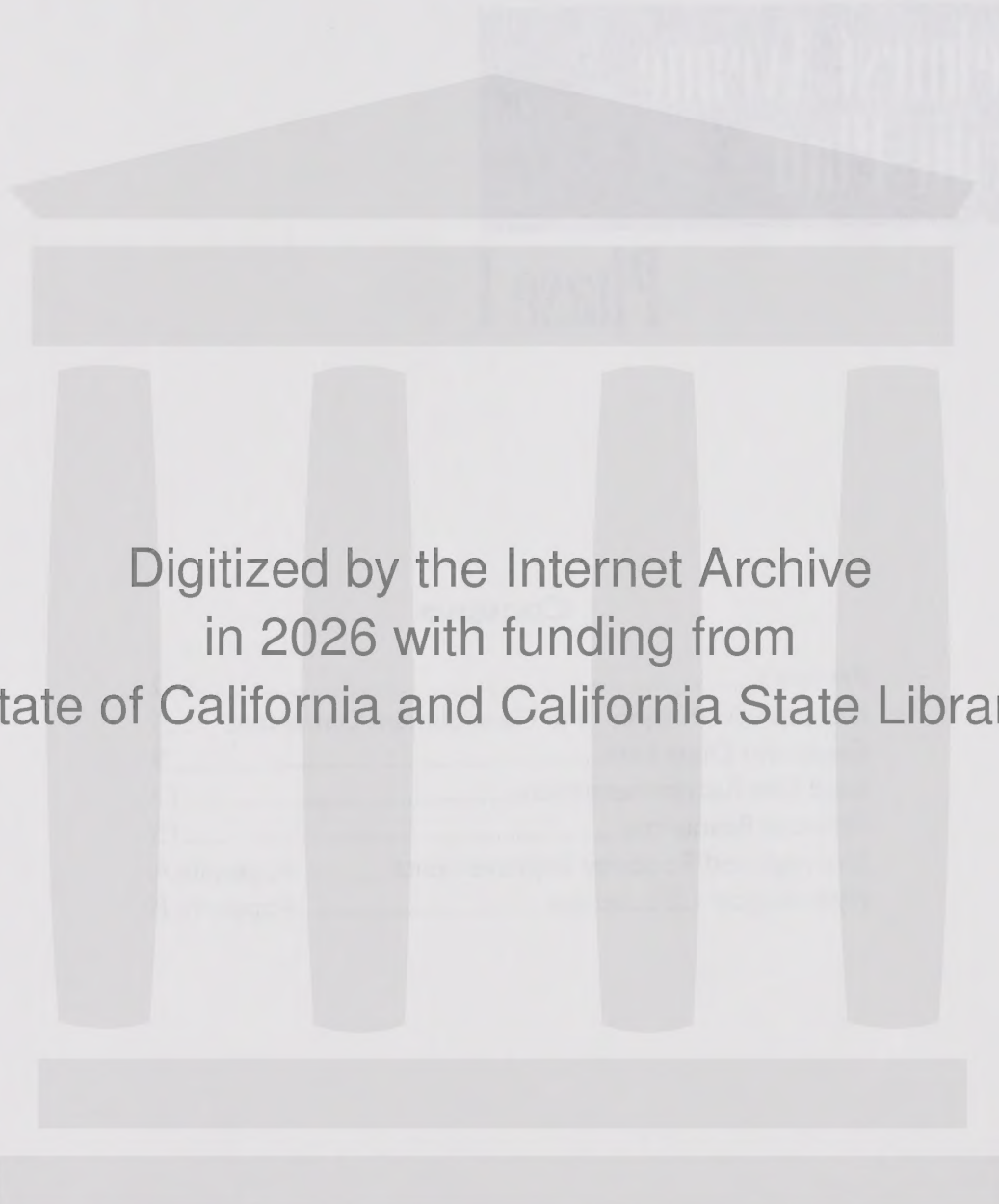
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## Preface

The Olivehurst Business District provides the only local commercial services to the existing population of approximately 10,000 people who make up the Olivehurst community. In August 1992 the Yuba County Board of Supervisors adopted Resolution 1992-170, recognizing the deteriorating condition of much of the private and public improvements within the business district and making application for a Community Development Block Grant from the State Department of Housing and Community Development.

It is felt that the Olivehurst Business District has remained underdeveloped for many years for a number of reasons. These include a basic weakness of the local retail market caused by persistent high unemployment and low income levels within the community. Most of the business district remains invisible to through-traffic on Highway 70 which minimizes the opportunity for capturing trade from the regional market. In addition, the deteriorating condition of both public and private improvements makes for a disincentive in attracting new investment.

The Specific Plan has been discussed in the grant application as including a detailed inventory of existing land use and building conditions; the development of policies and standards regarding the rehabilitation, replacement and development of commercial facilities; an inventory of existing and descriptions of needed public improvements and infrastructure; identification of funding alternatives for both public and private improvements which may be planned; and the identification of programs to attract new businesses to the community of Olivehurst. A primary purpose of the Specific Plan is to attract increased job opportunities for the existing population of Olivehurst.

In September 1993, the Board of Supervisors approved the Plumas Lake Specific Plan, a long range proposal for the southerly expansion of the Olivehurst urban area and the development of over 11,000 homes and a number of commercial and light industrial areas. The potential market represented by this popula-

tion represents a very positive future for the Olivehurst Business District if the problems associated with its substandard physical condition and lack of amenities can be overcome.

The Yuba County Airport and surrounding industrial properties also represent a long-term potential for business growth in the Olivehurst Business District. A major access route to the Airport is the Olivehurst/Seventh Ave., corridor. Over time, an increasing market for support services to the Airport industrial areas will provide opportunities for new uses along the corridor.

This study has been prepared as a first phase in the preparation of a Specific Plan for the Olivehurst Avenue area. It covers a basic requirement for the collection of data concerning the extent of deteriorating conditions, the policies and objectives for the Olivehurst Avenue Specific Plan, an analysis of needed public improvements and a concept and program for the redevelopment of the area. In addition to this basic information, an informal organization of residents, land owners and business owners within the area was formed as a steering committee to this effort. It is hoped that one of the more formal options for permanent organization will be pursued in the future.

The second, and final phase of the Specific Plan will entail the completion of implementing programs, including funding programs, the preparation of appropriate environmental analysis and the creation of a Redevelopment Agency or other entity which may found to be necessary or desirable by the Yuba County Board of Supervisors.

This Report is organized into a number of sections.





## Commercial Analysis and Development Limitations

**A**s a commercial district, Olivehurst Avenue is beset by a number of physical limitations common to older commercial areas which were designed to contain locally-owned, small businesses which are sometimes referred to as “mom-and-pop” stores. While never a “downtown” business district, the pattern of lot sizes and street frontage along Olivehurst Avenue presents the same type of development problems as does a traditional downtown area which was subdivided prior to the dominance of the auto mobile. The existing pattern of small and narrow lots represents the first major barrier to the successful economic revitalization of the Olivehurst Avenue business district.

While trade along the Avenue has remained stagnant, traffic has increased as a result of growth within the community and a need by Olivehurst residents to drive outside of the Community for commercial and other services. Traffic increases have caused local planners to seek wider rights-of-way to avoid congestion and to make basic improvements to major roads. A fundamental conflict exists between the need to efficiently carry traffic through the community without congestion, and the need to make Olivehurst Avenue an attractive commercial destination for community residents. The need to avoid congestion from projected high levels of through traffic in a commercial area is a second major barrier to economic revitalization.

Finally, the nature of retailing has changed more than once since commercial districts like Olivehurst Avenue were laid out. In the 1950's and 1960's, commercial strips along major streets declined in trade, giving way to outlying centers and mall developments that offered two major advantages. The first was ample parking which recognized that virtually everyone *drove*

to shopping. The second was a broad offering of goods and services within a clustered and usually architecturally consistent environment.

In the 1980's and on into the 1990's the volume of trade in malls and other general retail centers began itself, to give way to a much more complex “market”. Price discounters in the form of discount department stores, warehouse stores and other special retail outlets began to dominate certain sectors of the market. Lower prices were possible because of development in more remote and less expensive locations and by providing “no-frills” building improvements. National volume discounters began to replace the regional department stores which had, themselves replaced the local “mom-and-pop” stores of our older commercial areas. This report will analyze the nature of the problems associated with certain types of new commercial development within the Olivehurst Avenue Plan area and will describe some measures that can enhance the existing commercial base and provide for new opportunities.

During discussions at early meetings of the Olivehurst Avenue Steering Committee, it was felt that a number of issues such as drainage and access to the developing Yuba County Airport industrial area transcends the limits of the defined plan area for the Olivehurst Specific Plan. While the boundaries of the Plan area have been established by previous action of the Board of Supervisors and by the terms of the State grant which funds this project, it is important to extend measures which the Plan may develop outside of its boundaries in order to deal with some of these larger issues. The Plan may, therefore establish requirements or implementing programs which apply to surrounding areas.







### Limitations of Parcel Size and Shape

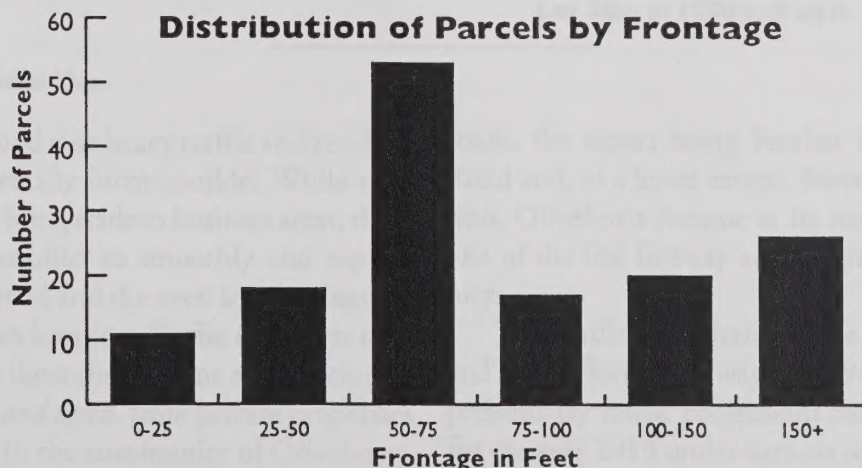
There are 150 individual parcels of land within the Olivehurst Avenue Plan area ranging in size from less than 300 square feet to over 3 acres. The 7 acre Ella School parcel also lies within the Plan area but is not considered statistically significant to this discussion since it is outside of the private sector. While nearly all of the Plan area is zoned for commercial development, only 32 parcels or 21% have been developed for commercial use. 81 parcels, or 54%, have been developed exclusively for residential uses. Obviously zoning land is not, of itself, sufficient incentive to cause it to be developed for the intended purpose.

In the historic, pre-automobile central business district, commercial lots of between 25 and 50 feet were sufficient to develop stores, shoulder-to-shoulder along the street. Today, such a lot is barely wide enough for a townhouse or small single family home. Modern commercial development, even in so-called "strip commercial" areas, demands frontage of 100 feet or wider, depending upon the use. Figure 1 shows the distribu-

tion of lot frontage for all of the parcels in the Plan area. This figure shows that the largest block of parcels fall within the frontage range of 50 to 75 feet. It is not surprising by this fact that the majority of lots are developed for single family residential purposes, since this width is typical for that use but is normally unsuitable for commercial development.

Figure 1 also shows that only 46 parcels have at least the 100 feet of frontage desirable for commercial development. A look at the lot pattern shows that these 46 parcels are widely distributed throughout the Plan area.

**Figure 1**







Lot size also affects the suitability of a property for commercial development. Figure 2 shows the distribution of lots by size in the Plan area.

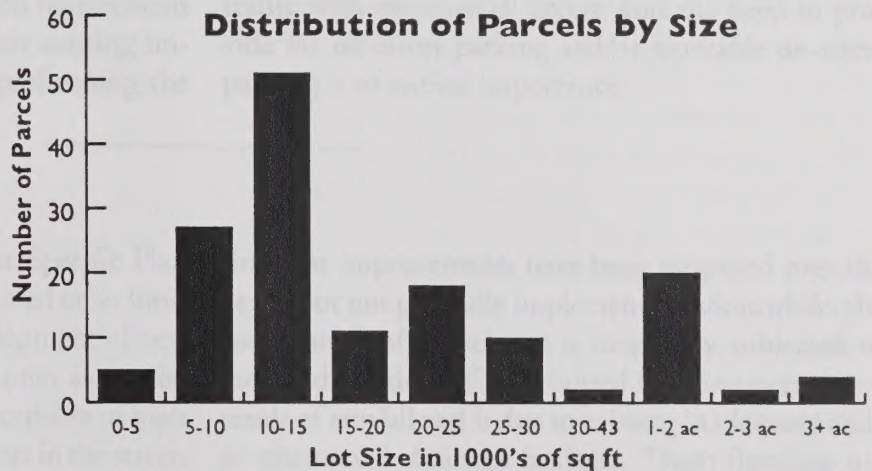
While our pre-automobile store could be built on a lot as small as 4000 or 5000 square feet by occupying nearly 100% of the lot or by utilizing 2nd or 3rd stories, this is not feasible today. Zoning regulations require 4-5 off-street parking spaces for each 1000 square feet of floor area for a business. Landscaping requirements for parking lots have been found necessary to "soften" the harsh environment of streets and parking lots, but add to the land requirement for businesses. In practice, the floor area, usually termed "gross leasable floor area" is only about 20% of the total available land for any business.

Thus, a 10000 square foot parcel can only be developed with about a 2000 square foot building under ideal circumstances. Those circumstances include frontage described previously, and also include the shape of the property. Builders of commercial properties want parcels as wide or wider than they are deep. This allows for a more efficient use of the front of the lot for off-street parking and also better visibility

from the street. Such visibility is important when trade arrives by car. At the speed of a car traveling along a street the time that a property is visible and identifiable is only a fraction of a second for a narrow, interior lot. Once again, it is the automobile that defines the value of a commercial property for development.

Virtually no properties along Olivehurst Avenue and Seventh Avenue have the ideal shape for commercial development. In terms of lot size, Figure 2 shows that 63% of the parcels are less than  $\frac{1}{2}$  acre. Given the current requirements for parking and landscaping in the County, these small parcels which also lack the proper shape and frontage are essentially unbuildable for their zoned use.

**Figure 2**



### Traffic and Commercial Use

It is well understood that heavy traffic and residential uses are normally incompatible. While traffic is essential to bring trade to business areas, there is also an inherent conflict to smoothly and rapidly carry traffic along a road and the need by a business to make it stop at a given location. Traffic engineers normally try to severely limit the amount and spacing of driveways, or *ingress and egress*, from private properties along a major road. In the community of Olivehurst, Olivehurst Avenue is one of four major north-south

roads, the others being Feather River Blvd., Arboga Road and, to a lesser extent, Powerline Road. In addition, Olivehurst Avenue at its northern end provides one of the few freeway access points for the community.

The traffic consultant to the Yuba County General Plan effort underway in 1994, has released some preliminary traffic projections for Olivehurst Avenue for the year 2015 under various scenarios for development in the region. For all but one of these scenarios,





it has been projected that a 4 lane road will be required to handle through traffic from McGowan to Highway 70.<sup>1</sup> Traffic under the various scenarios is projected to be within 11,405 and 14,173 trips per day.

A four lane road without on-street parking requires a minimum of about 80 feet of right-of-way. While a detailed study has not been performed, this amount of right-of-way would adversely effect a considerable number of structures along the street.

Even under the present circumstances the need for additional right-of-way, currently planned for 84 feet, has adversely effected new development and even the maintenance of existing development along the street. A process for the conditional issuance of building permits, subject to the dedication of right-of-way 42 feet from the centerline of the road, has been in effect for some time. In some cases this dedication requirement would have involved structures or other existing improvements and has resulted in not performing the

planned work, usually an improvement to the building or parking.

To a degree, the lack of shoulder improvements and curb and gutter which has persisted to the present along some portions of the Avenue, has helped businesses which otherwise lack off-street parking. Unfortunately, the use of dirt shoulders as informal parking lots also contributes to the untidy appearance of the street and has a negative effect upon surrounding properties. Any improvements to the street, whether the four lanes contemplated in the draft work on the new general plan or even basic road and drainage improvements to the street which are necessary in present conditions will eliminate this informal on-street parking arrangement. Under any foreseeable outcome of the Olivehurst Specific Plan, the need to balance through traffic with commercial access, and the need to provide for off-street parking and/or workable on-street parking is of critical importance.

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### Other Limitations

The members of the Olivehurst Specific Plan Steering Committee have identified other limitations which hinder the development of new businesses and the investment in old ones along the Avenue. Chief among these are the perception of high crime, and the lack of basic improvements in the street, curb and gutter and adequate drainage. To these can be added the negative influence of the poor aesthetic quality of the street created by poor maintenance of some properties and inherently unsightly uses in key locations.

### Drainage

Throughout the years, drainage problems within the community of Olivehurst have been a major concern among the citizens and business owners. Sugges-

tions for improvements have been proposed over the years, but not generally implemented. Meanwhile, the community of Olivehurst is frequently subjected to localized flooding. This localized flooding occurs as a result of rainfall and is due to existing inadequate and/or obstructed drainage facilities. These flooding occurrences are periodically compounded by backwater effects due to high Bear River flows and Feather River stages. However, the Olivehurst Avenue Specific Plan area tends to be located on higher ground and is not greatly affected by Bear River backwater as are other areas in the community.

Much of the nuisance flooding along Olivehurst Avenue could be alleviated by improvements in the roadway and storm drain system. Such improvements should include curb, gutter, and sidewalk along with a

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<sup>1</sup>Table 4-9, *Yuba County General Plan, Revised Goals, Objectives, Growth Assumptions and Alternative Analysis*, QUAD, Oct 1993





drainage conveyance system capable of handling runoff from a ten-year frequency storm. The existing roadway in the study area tends to be higher than surrounding land and creates nuisance flooding at the fronts of lots. To prevent this flooding or to avoid increasing this problem, the roadways would need to be lowered at selected locations to allow the construction of curbs and gutters. Additionally, drainage inlets may be necessary behind the curbs.

The backbone of the existing drainage system in Olivehurst consists of the Clark Slough and the Clark Lateral. The Clark Slough meanders through Olivehurst basically following its natural course until it connects to the Clark Lateral. The Clark Lateral is an interceptor canal that runs along the east side of the Union Pacific Railroad. A storm drainage piping systems are installed, it is recommended that these facilities be designed to go directly to the Clark Lateral and not to Clark Slough. For a number of reasons, this is seen as the most effective solution:

1. The existing Clark Slough is located in a confined canal where upgrades and maintenance is very difficult.
2. The Clark Lateral is a more defined canal that can easily be upgraded to handle increased flows.
3. The existing flows within Clark Slough create conveyance flooding and additional flows would require upgrades.

With the increased use of the downtown area and presence of the Yuba County Airport, the need for roadway and drainage improvements along Olivehurst Avenue from Highway 70 to approximately 8th Avenue and 7th Avenue are necessary. These should be provided from Fleming Avenue to Clark Lateral. Improvements along 7th Avenue are needed because it is currently the only through roadway to the Airport and is the most probable path for the proposed drainage conveyance system.

The proposed construction creates potential problems in the vicinity of 7th Avenue and Olivehurst Avenue. Currently, Ella School uses the roadway shoulders as a parking area, as do local businesses in the area. If curb, gutter and sidewalk improvements are constructed, the parking may be lost and would need to be replaced either on or off site. Additionally, as improvements may be carried out in these roads, overhead utilities should be placed underground.

#### **Aesthetics**

In a survey of the Plan area conducted by members of the Committee, 91 parcels, or 61%, were found to have moderately or severely negative visual quality. In addition, several key locations are occupied by uses which are inherently unsightly. These include an auto dismantler occupying a number of parcels at the entrance of the community at Highway 70 and an auto storage yard at the Seventh Avenue/Olivehurst Avenue intersection. The existence of such low-value uses at otherwise important locations in a commercial area is an indication that free-market forces alone are incapable of bringing about positive economic change.

Other negative aesthetic factors include: the existence of boarded and abandoned buildings which remain unchanged for years; the use of commercial structures for storage and even residential use; the poor level of public investment in the street in the form of roadway improvements and street trees; and the use of vacant lots for parking. When a majority of properties in an area are not maintained, little incentive exists for other property owners to invest in the appearance of their property.

#### **Structural Survey**

Figure 3 shows the existing land uses within the Plan area and displays an overlay of general structural condition as evaluated by volunteers from the steering committee. While not intended to be a basis for a finding of "blight", the survey indicates a likelihood that redevelopment may be considered as a feasible implementation program.





# Olivehurst Avenue Specific Plan

## LEGEND

- Residential
- Commercial
- Mixed Use
- Public
- Street Widening Area

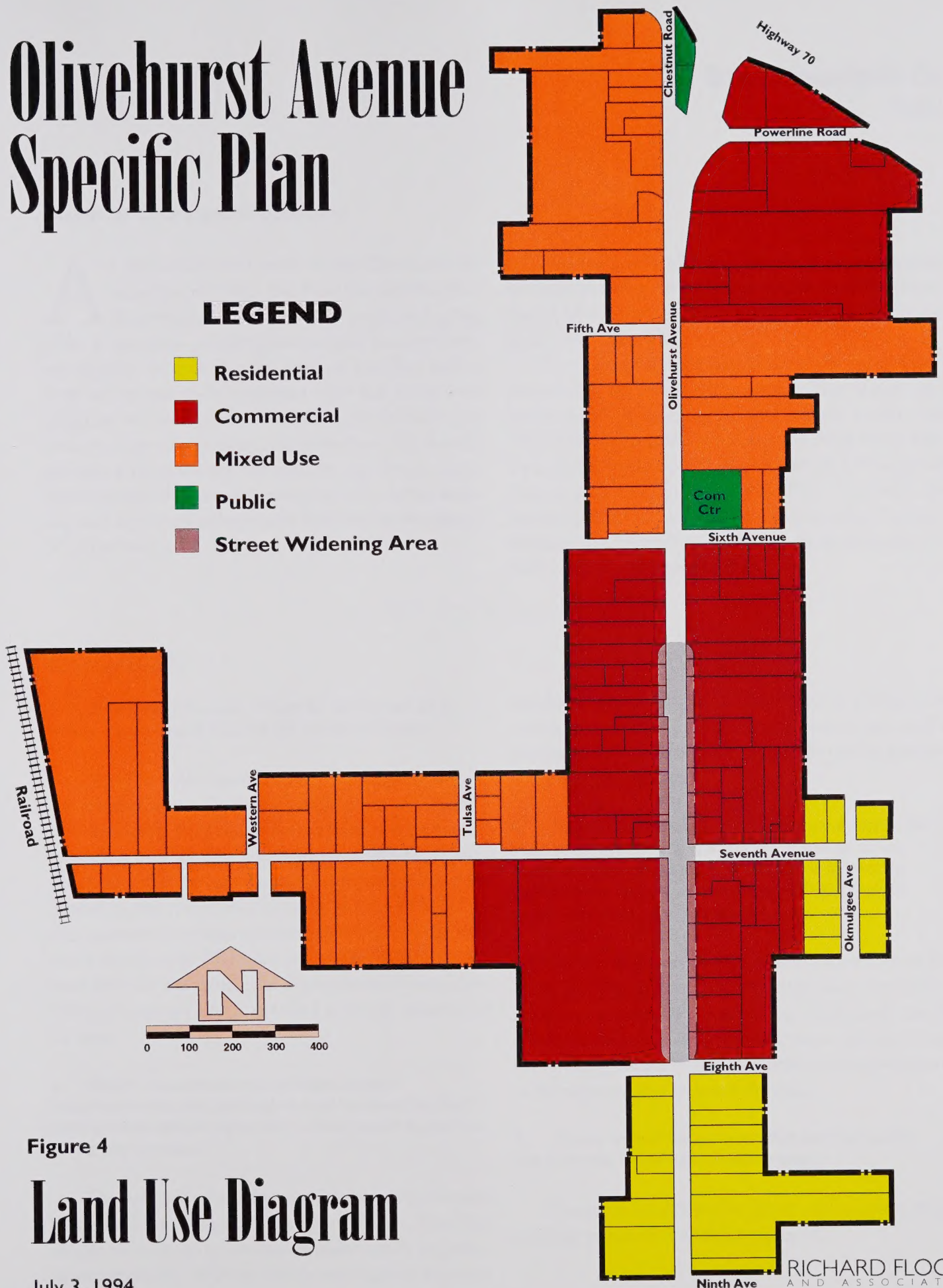


Figure 4

## Land Use Diagram

July 3, 1994

RICHARD FLOCH  
AND ASSOCIATES





## Intent of Goals and Objectives

**A**t the initiation of work on the Olivehurst Avenue Specific Plan, the Yuba County Board of Supervisors formed a loosely organized group of local residents, property owners and business owners to assist in defining the goals of the Plan and to steer and review its development. One task in the work program was to explore the advantages of a more permanent form of community organization which could provide a voice for the community and be an on-going advocate for the development of jobs, better housing and improved community facilities for the people of Olivehurst.

Another task has been to oversee the development of Goals and Objectives for later inclusion in the preparation of the Specific Plan itself. This section is the product of that task.

The following is organized into two parts: Goals intended to better focus the Specific Plan and to precisely define its geographic and topical limits, and Objectives organized into short and long-term measures to be implemented in the Plan and through its various programs for later work. The Objectives can be considered to be recommendations, subject to later revision and refinement in the actual drafting and review of the Draft Specific Plan.

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## Project Goals

### **1. Olivehurst Avenue should be protected as a major commercial district for the community.**

Olivehurst Avenue represents the major commercial district presently located within the community of Olivehurst. Because of deficiencies in its physical condition and level of goods services offered, it continues to fail to capture the substantial part of business needed by the residents of the community. It faces further competition from commercial centers in the Plumas Lake Specific Plan area unless the Olivehurst Avenue area can make substantial progress in solving identified limitations and it can find a unique identity of its own.

### **2. Public investment in drainage, street improvements and parking should be coordinated with private efforts to make reinvestment in parcels along the Avenue.**

The primary vehicle for coordination of public and private efforts is through the Specific Plan. The Plan should develop programs which make timely improvements in public facilities which can support business

rehabilitations and new construction in the areas in which they occur. As public improvements are made a program to eliminate blight on nearby private properties should be pursued.

### **3. Residential uses should be retained within the Plan area, but provided in such a manner as to support rather than detract from the primarily commercial nature of the Avenue. Substandard housing should be eliminated.**

Certain populations such as low and moderate income families and the elderly benefit from close proximity to commercial services. The unplanned scatter of residential uses and the use of commercial buildings for housing should be replaced with housing designed to be supportive of commercial uses.

### **4. There should be an improved level of public safety in the Olivehurst Avenue area.**

Concepts for defensible space and a community policing presence should be explored.





**5. The Olivehurst Avenue–Seventh Avenue area should provide an attractive gateway to the Yuba County Airport.**

It is to the advantage of the economic future of the Yuba County Airport and Enterprise Zone, that the Olivehurst Avenue area make improvements within the Plan area to the roads and abutting commercial properties.

**6. A formal organization of the business community should occur.**

The formation of a permanent business organization can be a focal point for efforts to encourage resi-

dents of Olivehurst to “shop locally”; can provide for sponsorship of civic events which raise the awareness of the community in the range of products and services offered locally, and can assist businesses in being responsive to local needs and legal requirements through education or the dissemination of information. The affiliation of the organization with a larger business group can provide access to information on pending legislation or other matters which effect business and employment.

**7. Provide opportunities for the development of low and moderate income housing.**

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## Short-Term Objectives

The following objectives are intended to be implemented over the short-term following completion of the Olivehurst Avenue Specific Plan:

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1.1 Design and construct basic drainage improvements on Olivehurst Avenue from Highway 70 to Ninth Avenue and on Seventh Avenue sufficient to protect private properties from runoff of storms of a ten-year frequency. Eliminate all open ditches in these areas.</b></p> <p><b>1.2 Remove overhead utilities from Olivehurst Avenue and Seventh Avenue.</b></p> <p><b>1.3 Identify locations where demand for parking exists and on-street parking is unable to be provided. Provide for public off-street parking in these locations.</b></p> <p><b>1.4 Provide for traffic flow improvements such as left turn channelization, and traffic lights or stop signs at needed locations.</b></p> | <p><b>1.5 Provide for bicycle paths where feasible. Provide bicycle paths within Olivehurst Avenue in a design which minimizes traffic conflicts while maintaining public parking.</b></p> <p><b>1.6 Coordinate Capital Improvement schedules to anticipate future needs and to minimize costs to the public.</b></p> <p><b>1.7 Create a design review process to ensure creative and well-planned projects within a framework of flexible standards and parking requirements to be established in the Specific Plan.</b></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|





## Long Term Objectives

The following objectives are considered to be desirable over the long-term.

- 2.1 Encourage the aggregation of existing parcels into larger units.
- 2.2 Develop an alternative route for through traffic between Highway 70 and McGowan.
- 2.3 Concentrate commercial uses in key “nodes” along the Avenue. Prohibit residential uses from these locations.
- 2.4 Encourage the use of interior portions of deep lots for residential purposes designed to be compatible with commercial uses fronting the street.
- 2.5 Eliminate blighted conditions through a combination of incentive and code enforcement.
- 2.6 Examine relocation options for the Auto dismantler at Highway 70 and Olivehurst Avenue and residents of blighted residential properties scattered along Olivehurst Avenue.
- 2.7 Establish a redevelopment authority in Yuba County. Target a redevelopment project in the Olivehurst Avenue area to the removal of substandard and inappropriate uses and the development of properties suitable for rehabilitation and new construction consistent with planned land uses.
- 2.8 Establish a loan assistance program for business reinvestment. Consider the use of funds reserved for such use by the State Department of Housing and Community Development under their Economic Development Allocation for Yuba County and supporting private loan programs set up by local banks.
- 2.9 Provide technical assistance for proposals consistent with the Specific Plan through expedited processing of development review, and other staff assistance.





### Specific Plan Land Use Recommendations

The following recommendations are intended to be a basis for development of land use regulations, public improvements and design guidelines for the Olivehurst Avenue Specific Plan.

Four categories of land use are needed for the Plan area: A *Residential* district for areas not targeted for commercial development; a *Commercial* district for areas to be developed as commercial centers; a *Public* district for public lands such as parks and public parking lots; and a *Mixed Use* district for properties transitional to the commercial centers and suitable for mixed residential and commercial uses.

#### Residential Land Use District

The Residential land use district is recommended for the block of Olivehurst Avenue between 8th and 9th Streets on both sides and for the small area of Seventh Avenue at Okmulgee Avenue, east of Seventh. These areas are at the edges of the Plan area and have few existing commercial uses.

The intent of the Residential district is to allow single-family and low density multi-family developments for properties which have little demand for commercial use and to provide transition to surrounding residential neighborhoods.

Regulations for the Residential district are anticipated to allow for continued use of non-conforming commercial properties provided that all other regulations are met. Off-street parking will be required for all new developments. Such developments will be limited to 20 dwelling units per acre, though it is unlikely that such densities can be achieved on the small parcels which currently exist.

#### Commercial District

The Commercial district is proposed between the two blocks of Olivehurst Avenue between 6th and 8th Avenues and the parcels in the immediate area of Powerline Road. These areas are suitable as commercial core areas with the Powerline Road site having the added advantage of a Highway location. Within these

areas at present are a mixture of well-maintained commercial uses, and deteriorating commercial and residential structures. In addition the Ella School lies within this district. Should that site become available for redevelopment at some time in the future it will make an ideal location for a medium sized single user or a commercial complex.

This district is intended to be exclusively retail and office commercial, except that existing residential uses will be allowed to continue as legal non-conforming uses. Regulations for the Commercial district are recommended to have relaxed off-street parking requirements to provide an additional incentive for rehabilitation or development of new improvements. To the extent feasible, the right-of-way for Olivehurst Avenue will be widened to 84 feet to allow for angled parking on-street to serve adjacent businesses. Where it is not feasible this district will be considered as priority for the acquisition and development of small public parking lots.

All development in this district is recommended to be subject to design review under a process to be established in the Specific Plan. All open storage and display of merchandise shall be prohibited except for "sidewalk sales" and other such temporary events under controlled standards. It is also intended that the property lines adjacent to residential areas be improved with some type of screening through a combination of walls and/or landscaping. For other property lines, no structural setbacks are recommended.

The 6th to 8th Avenue blocks of Olivehurst Avenue and the immediately adjacent properties along Seventh Avenue are considered ideal for occasional closure for street fairs. The enlarged right-of-way will make for sufficient room for displays and a street tree program will allow for shaded areas. The Specific Plan should provide a process for the closure of the street at these times through involvement by the Sheriff's office in police protection and the rerouting of traffic.





#### **Mixed Use District**

The Mixed Use district occupies the majority of land on Olivehurst Avenue north of 6th Ave. and the entire reach of Seventh Avenue west of Ella School and east of the Railroad. It is the intent of this district to allow for the intermix of small-scale commercial development within a primarily residential character. Ground floor retail and service uses can be developed facing the primary street with residential units either above or, on deeper lots, to the rear. Examples of such uses include convenience markets (without gas pumps), video stores, dry cleaning outlets, deli's and cafes, meat or produce stores, and small retail stores. Service uses might include professional offices, barbers and hair salons, and day care centers.

In order for property owners to maximize their return on improvements within this district, the development of residential units, in particular new low and moderate income rental units, should be encouraged. In other cases shop owners may wish to reside on the same property as their place of business. This is a very traditional form of mixed use that goes back to the last century. It is also a very modern concept and is a cornerstone of neo-traditional planning principles which have recently been adopted in a number of jurisdictions in California and elsewhere.

The Mixed Use district should provide for design review under the same process as for the Commercial district. No setbacks should be required for commercial uses and the design review process should examine the need for residential setbacks on a case-by-case basis. In a similar fashion the Specific Plan should allow for latitude in the requirement for off-street parking in this district. It is recommended that right-of-way improvements be kept minimal and that any on-street parking allowed should be parallel to the travel way. This means that some off-street parking may be necessary.

#### **Public District**

The Public district is intended to recognize that a number of public uses exist within the Plan area. These include the Community Center, and a small park at the northern end of the Plan area. Other public uses, such as the Head-start facility at Eighth Ave. and Ella School are either potential sites for redevelopment or are anticipated to be allowed in the district in which there are planned.

The Public district is also intended to be used for new parks which may be sited in the Specific Plan and for the development of public parking lots.





# Olivehurst Avenue Specific Plan

## LEGEND

- |                                                                                                    |                                                                                                         |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  S/F Residential  |  M/F Residential       |
|  Office/Medical   |  School/Public         |
|  Retail           |  Res/Retail            |
|  Improved Parking |  Res/Office            |
|  Open Storage     |  Res/Retail/Office     |
|  Vacant           |  Retail/Open Stor      |
|  Abandoned        |  Minor Deterioration   |
|                                                                                                    |  Major Deterioration |

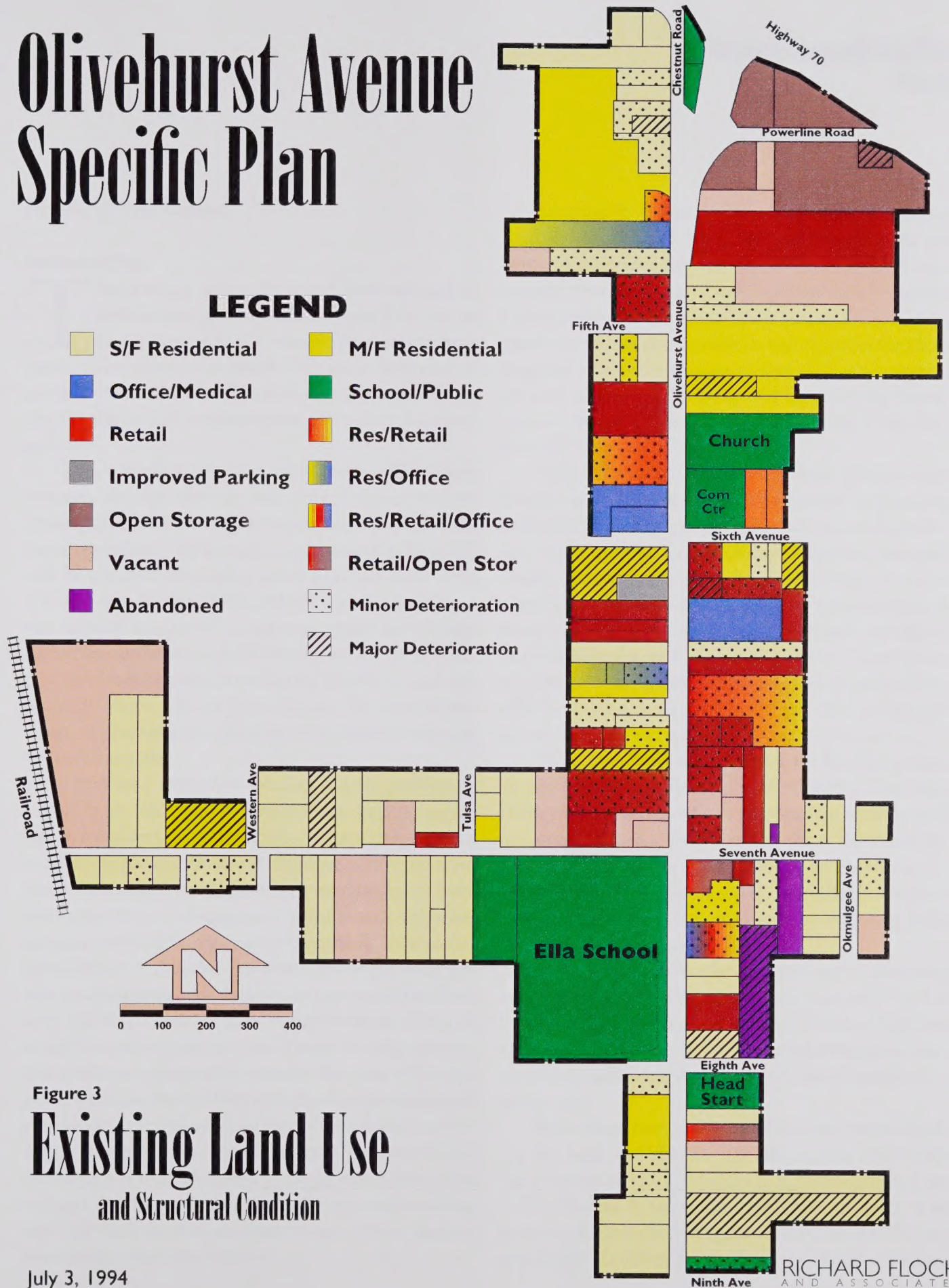


Figure 3

## Existing Land Use and Structural Condition

July 3, 1994

RICHARD FLOCH  
AND ASSOCIATES





## Funding Resources

### Introduction.

The sections above discussed land use and infrastructure policies recommended for the enhancement of the Olivehurst business environment. The discussion which follows is intended to summarize some of the financial resources available to pay for the cost of implementing the earlier described policies.

The costs of construction for improving Olivehurst Avenue, Seventh Avenue and providing stormwater drainage facilities has been estimated at \$1,752,000.00 (see Appendices). Of this sum approximately \$640,000 will be obtained through a grant of funds from Yuba County. In addition, \$200,000.00 is anticipated from the County as part of a bikeways grant and further sums may likely be available from Pacific Gas & Electric for undergrounding electric facilities and the County Water Agency for drainage improvements. Thus, approximately \$900,000.00 is needed from alternative sources.

There are a myriad of funding sources potentially available for the type of infrastructure improvements which have been recommended. Perhaps the preferred method is private developer funding. Development interests require infrastructure improvements. It is not uncommon nor infrequent to require such improvements to be paid for by new development. It is understood however that the law clearly mandates that private interests cannot be required to pay more than their own fair share costs of such improvements. Thus, it would be appropriate for the County to enter into reimbursement agreements whereby the costs of the improvements in excess of the benefit of to the individual developer are reimbursed by future beneficiaries of the improvements. The present concern however is that Olivehurst is unlikely today to be able to attract large enough development interests who are ready, willing and able to front the necessary costs. Other funding avenues must be examined.

**Community Development Block Grants.** Some funding would most likely be available through the State of California's Department of Housing and Community Development. That Department administers Community Development Block Grant (CDBG) programs to provide grants to cities and counties for planning and technical assistance programs. Such programs are governed by the Housing and Community Development Act of 1974 and Health & Safety Code Section 50833.

CDBG funding is available for downtown revitalizing projects with payments being made for planning and technical assistance purposes such as market studies, studies relating to the local employment base and market demands as well as the service needs of a local community. Grants are available to communities to study infrastructure requirements and are available to individual businesses who may wish to locate in an eligible area. The latter type of grant is particularly effective as a business attraction tool. The use of such grants is strongly encouraged.

CDBG funds are also available for feasibility studies and land inventories within the County. Such feasibility studies could include engineering, architectural and design efforts. To the extent that Olivehurst desires to pursue tourism as a factor in its economic development, CDBG funds are again available for planning and technical assistance activities including feasibility analysis and inventories.

It should be noted that comprehensive planning and engineering studies are generally not available for funding. This is also generally true of redevelopment activities except to the extent that a redevelopment plan specifically addresses the housing needs of specific target groups.

**Redevelopment.** The use of redevelopment funding has been available in California since 1945 with the adoption of the Community Redevelopment Law (CRL) (Health & Safety Code §§ 33000 et. seq.). The primary objective and purpose of the CRL is to "eliminate blight" as defined with the law. (Health & Safety





Code §§ 33031 and 33032). A community may utilize CRL authority to redevelop blighted areas through the use of demolition and new construction, site assembly, owner participation and rehabilitation (League of California Cities, Municipal Law Handbook, (Chapter V, page 95).

Redevelopment programs are administered by redevelopment agencies which are treated as agencies of the State. Redevelopment agencies are in turn governed by a board which is sometimes independent from but more often the same as the legislative body of the local jurisdiction such as the Yuba County Board of Supervisors.

A redevelopment agency has the power to:

- Acquire property
- Sell or lease property
- Contract for public works
- Provide for site preparation work
- Rehabilitate and manage property
- Establish design controls
- Increase and improve a community's stock of low and moderate income housing.

The primary source of redevelopment funding is through "tax increments" whereby the agency funds its activities through receipt of the increased property tax revenues resulting from the increased assessed valuation after the adoption of a redevelopment plan. The tax increment funds may either be used directly or as a leverage to the issuance of tax allocation bonds.

Additional funding sources are available to redevelopment agencies such as through the Mello-Roos Community Facilities District Act (Cal. Govt. Code §§ 53311 et. seq), transient occupancy taxes and legislative appropriation. From a practical standpoint however, given current economic conditions, tax increment financing is the most realistic funding alternative.

The utilization of redevelopment should be given strong and careful consideration as a means of addressing the program outlined in this study.

**Other Funding Sources.** As noted above, pri-

vate development can be a major source for economic development funding. However, there would need to be substantial cooperation with affected government agencies to ensure incentives for private industry to make such a commitment.

It should also not be overlooked that the Olivehurst community could now agree to the formation of an area wide assessment district to fund infrastructure improvements. However, given the current state of the economy in the Olivehurst area and the demographics of the community, it is unlikely and unreasonable to anticipate such voluntary action by the community.

Finally, various programs are available through banking institutions that are specifically devised for economic development purposes. Consideration should be given to engage local financial entities into a partnership program for mutual benefit.

**Conclusion.** In conclusion, it is believed that with imagination and effort, the utilization of currently available resources could fund the necessary improvements as noted in this report.





OLIVERHURST AVENUE SPECIFIC PLAN  
DRAINAGE AND ROADWAY IMPROVEMENTS

**APPENDIX A**

JULY, 1994

PREPARED BY  
SOM, INC.





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**JULY, 1994**

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## PREPARED BY MHM, INC.

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## **OLIVEHURST AVENUE SPECIFIC PLAN DRAINAGE AND ROADWAY IMPROVEMENTS STUDY PLAN**

### **CHAPTER 1.0 BACKGROUND**

#### **1.1 Introduction**

The Olivehurst Avenue Specific Plan encompasses the business district of the community of Olivehurst which is located approximately two (2) miles south of the City of Marysville along the Highway 65/70 corridor. The Olivehurst business district provides the only local commercial services to the existing population of approximately 10,000 people in Olivehurst. In August of 1992, the Yuba County Board of Supervisors adopted Resolution 1992-170 recognizing the deteriorating condition of much of the private and public improvements within the business district and received a grant to prepare a Specific Plan for the Olivehurst business district. This specific plan covers a portion of Olivehurst Avenue and Seventh Avenue hereby called the Olivehurst Avenue Specific Plan. (See Figure A1)

The deteriorating conditions of both public and private improvements makes for a lack of incentive in attracting new investment. This along with the need to carry through traffic and bringing customers into the area creates the need for basic improvements to the major roads. Part of the road improvements include an underground drainage conveyance system capable of handling runoff without localized or nuisance flooding.

#### **1.2 GOALS OF THE STUDY**

This Drainage and Roadway Improvement Study Plan has been prepared for use as an aid to land planning infrastructure and financing for the Olivehurst Avenue Specific Plan. The intent of this study is to assess the existing conditions and facilities and to determine possible drainage and roadway improvements consistent with the goals of the Olivehurst Avenue Specific Plan. The improvements and the associated cost estimated would meet the goals of:

- Providing roadway improvements with curb, gutter, and sidewalks within the Olivehurst business district.
- Alleviating the nuisance of flooding by providing a storm drainage conveyance system capable of handling a 10-year storm event.
- Providing adequate mapping of drainage basins and roads.
- Providing phasing alternatives and possible future projects.





OLIVEHURST AVENUE SPECIFIC PLAN

LEGEND

- DRAINAGE BASIN BOUNDARY
- (A) DRAINAGE BASIN
- ▭ SPECIFIC PLAN AREA



NOTE: DRAINAGE BASIN (H) IS PART OF CLARK SLOUGH WATERSHED.

FIGURE A1  
LOCATION MAP &  
DRAINAGE BASINS  
JULY 25, 1994

PREPARED BY: MHM INC. 523 "J" ST., MARYSVILLE, CA.





## CHAPTER 2.0 REQUIRED ROADWAY FACILITIES AND COSTS

### 2.1 Introduction

The Olivehurst Business District is currently served by two major roadways. Olivehurst Avenue is the north-south arterial which provides the downtown area with freeway access to the north and the new development to the south near McGowan Parkway. Seventh Avenue provides the downtown area east-west access to the Yuba County Airport.

The existing roadway improvements consist of an elevated paved road section with limited roadside drainage ditches. This general lack of shoulder improvements (curb, gutters, and sidewalks) contributes to the disorderly appearance of the street and has had a negative effect on surrounding business.

### 2.2 Roadway Improvements

The roadway improvements in the downtown area need to be designed to handle as much of the projected traffic without negatively affecting the area. The traffic consultant to the Yuba County General Plan has released some preliminary traffic projections for Olivehurst Avenue for the year 2015 under various scenarios for development in the region. For all but one of these scenarios, it has been projected that a four lane roadway will be needed to handle through traffic.

A four lane roadway with a left turn lane and no street parking requires a minimum of about 80 feet of right-of-way. Currently, Olivehurst Avenue has 60 feet of right-of-way and Seventh Avenue has 40 feet with many of the structures built to the right-of-way. The use of an 80-foot right-of-way would require many structures to be destroyed or modified along both Olivehurst and Seventh Avenue. The use of a 60-foot right-of-way allows a two lane roadway with both street parking and bike lanes, and minimizes the effect on existing structures. The 60-foot right-of-way would allow curb, gutter, and sidewalk improvements as shown in Figure A2.

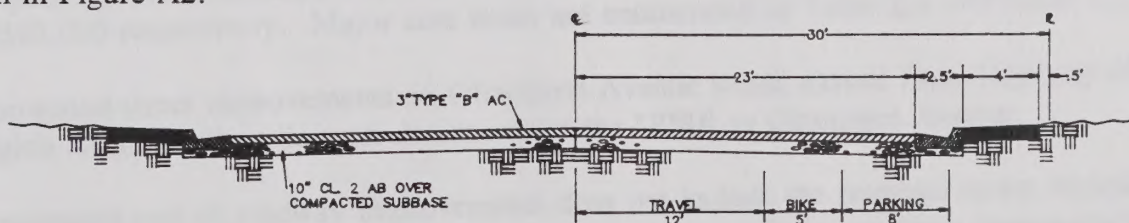


Figure A2 - Typical 60' Roadway





To a degree, the lack of curb, gutter and sidewalk improvements along both Olivehurst and Seventh Avenue has helped businesses which otherwise lack off-street parking. Unfortunately, this practice of using dirt shoulders as informal parking lots contributes to the disorderly appearance of the street. Any improvements to the street, whether it is the four lanes contemplated in the draft work or the basic road shown in Figure A2, will eliminate this informal on-street parking arrangement. This is a primary concern in the vicinity of Olivehurst and Seventh avenues where Ella School uses the roadway shoulders as a parking area for both staff and visitors. In order to accommodate the parking shortage, a modified roadway with on-street parking was analyzed. The modified roadway section has 84 feet of right-of-way and allows two lanes, thirty (30) degree on-street parking, and bike paths. The 84-foot right-of-way also provides curb, gutter and sidewalk improvements as shown in Figure A3.

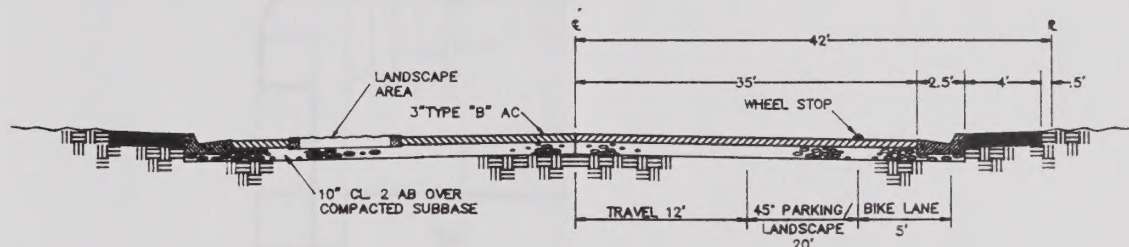


Figure A3 - Typical 84' Roadway

The use of an off-street parking area in the vicinity of Seventh and Olivehurst avenues would provide approximately the same level of service as the 84-foot roadway. This off-street parking combined with the 60-foot roadway would minimize the effect on existing structures.

### 2.3 Costs of Roadway Improvements

The estimated cost of the roadway improvements outlined in this study plan have been separated into Olivehurst Avenue Improvements and Seventh Avenue Improvements. The estimated project costs were based on using the 60-foot right-of-way and not providing off-street parking. The estimated cost for Olivehurst Avenue and Seventh Avenue is \$662,000 and \$563,000 respectively. Major cost items are enumerated in Table 2.1 and Table 2.2

The proposed street improvements on Olivehurst Avenue would extend from Highway 65/70 to Eighth Avenue and on Seventh Avenue from the UPRR to Okmulgee Avenue.

The estimated cost of roadway improvements does not include the required storm drainage facilities. The storm drainage facilities are an essential part of the roadway improvements and are addressed in Chapter 3.0 of the Study Plan.





OLIVEHURST AVENUE SPECIFIC PLAN

LEGEND

- DRAINAGE BASIN BOUNDARY
- (A) DRAINAGE BASIN
- [ ] SPECIFIC PLAN AREA



SCALE 1"=400'

NOTE: DRAINAGE BASIN (H) IS PART OF CLARK SLOUGH WATERSHED.

FIGURE A1  
LOCATION MAP &  
DRAINAGE BASINS  
JULY 25, 1994

PREPARED BY: MHM INC. 523 "J" ST., MARYSVILLE, CA.





**Table 2.1**  
**Olivehurst Avenue -- Roadway Improvements**  
**Hwy. 65/70 to Eighth Avenue**

| Item                                         | Quantity     | Cost(\$)         |
|----------------------------------------------|--------------|------------------|
| 1. Clean & Grub                              | 1 Job        | \$ 15,000        |
| 2. Asphaltic Concrete (3")                   | 3,220 Tons   | 113,000          |
| 3. Class 2 Aggregate Base (10")              | 9,840 Tons   | 128,000          |
| 4. Roadway Excavation                        | 170,000 S.F. | 95,000           |
| 5. Barrier Curb & Gutter                     | 6,000 L.F.   | 60,000           |
| 6. 4' Sidewalk                               | 24,000 S.F.  | 48,000           |
| 7. Street Striping and Marking               | 1 Job        | 5,000            |
| 8. Fire Hydrant Assemblies                   | 5 Each       | 18,000           |
| 9. Transition Exist. Improvement & Utilities | 1 Job        | 19,000           |
| Subtotal                                     |              | \$501,000        |
| Contingency at 15%                           |              | 75,000           |
| Total                                        |              | \$576,000        |
| Engineering & Contract Mgt. at 15%           |              | 86,000           |
| <b>TOTAL</b>                                 |              | <b>\$662,000</b> |





**Table 2.2**  
**Seventh Avenue -- Roadway Improvements**  
**Union Pacific Railroad to Okmulgee Avenue**

| Item                                                     | Quantity    | Cost(\$)         |
|----------------------------------------------------------|-------------|------------------|
| 1. Clean & Grub                                          | 1 Job       | \$ 18,000        |
| 2. Asphaltic Concrete (3")                               | 1,860 Tons  | 65,000           |
| 3. Class 2 Aggregate Base (10")                          | 5,685 Tons  | 74,000           |
| 4. Roadway Excavation                                    | 98,000 S.F. | 55,000           |
| 5. Barrier Curb & Gutter                                 | 4,000 L.F.  | 40,000           |
| 6. 4' Sidewalk                                           | 17,200 S.F. | 34,000           |
| 7. Street Striping and Marking                           | 1 Job       | 2,500            |
| 8. Fire Hydrant Assemblies                               | 3 Each      | 11,000           |
| 9. Transition Exist. Improvement & Utilities             | 1 Job       | 13,000           |
| 10. Acquisition Costs (land, appraisals,<br>legal, etc.) | 1 Job       | 100,000          |
| 11. Adjust Existing Sewer & Water Services               | 1 Job       | 30,000           |
| Subtotal                                                 |             | \$442,500        |
| Contingency at 15%                                       |             | 66,000           |
| Total                                                    |             | \$508,500        |
| Engineering & Contract Mgt. at 15%<br>(less Item No. 10) |             | 54,500           |
| <b>TOTAL</b>                                             |             | <b>\$563,000</b> |





## **CHAPTER 3.0 REQUIRED DRAINAGE FACILITIES & COSTS**

### **3.1 EXISTING AND HISTORIC DRAINAGE PROBLEMS**

Throughout the years, drainage problems within the community of Olivehurst have been a major concern among the citizens and business owners. Suggestions for improvements have been proposed over the years, but not generally implemented. Meanwhile, the community of Olivehurst is frequently subjected to localized flooding. This localized flooding occurs as a result of existing inadequate and/or obstructed drainage facilities. The flooding is compounded by upstream stormwater flows via the Horseman's Ditch and Clark Slough into the area from East Linda, and additionally from backwater effects due to high Bear River flows and Feather River stages. However, the Olivehurst Avenue Specific Plan area tends to be located on higher ground and is not as greatly affected by Bear River backwater as are other areas in the community. Existing and historic drainage problems from the East Linda area will be greatly reduced upon completion of Phase I South Yuba Drainage Master Plan. Phase I would intercept the stormwater that currently enters Olivehurst via the Horseman's Ditch and Clark Slough and redirect the flows to Reeds Creek.

### **3.2 RELATED DRAINAGE STUDIES**

The Olivehurst area drainage and flooding issues have been investigated by many agencies over the years. The Federal Emergency Management Agency (FEMA) conducted a flood insurance study for the unincorporated area of Yuba County, including the community of Olivehurst in 1981 (ref. 1). The Army Corps of Engineers issued reports on the Bear River in 1972 and 1981 referencing this study area (ref. 2 and ref. 3). MHM, Inc. prepared the original South Yuba Drainage Master Plan (SYDMP) in 1981 (ref. 4) and the Revised South Yuba Drainage Master Plan in 1991 (ref. 5). In 1973, a report by Lampman & Associates was prepared addressing the necessary drainage improvements for the community of Olivehurst (ref. 6).

The previous studies address the Olivehurst business district as follows:

- The Army Corps of Engineers report and the SYDMP report both recommended intercepting flows from east of the Southern Pacific Railroad (SPRR) tracks to reduce flooding in Olivehurst. This diversion has commonly been referred to as the "Olivehurst Interceptor Channel Improvement."
- The Lampman & Associates report was a drainage study that addressed the conveyance problems within the community of Olivehurst with a combination of open channel flow (roadside ditches) and drainage trunk lines.





The previous studies did not account for providing curb, gutter, and sidewalks, or an underground conveyance system for stormwater.

### **3.3 STORMWATER DRAINAGE FACILITIES**

The proposed roadway improvements require drainage facilities adequate to provide for flow of water away from the surface of the pavement and prevent impounding of water on the pavement surface. The current County standard for urban drainage systems design is runoff from a 10-year storm event. A 10-year storm event is a storm with a ten (10) percent chance of occurring in any given year.

The drainage facility proposed is a system capable of collecting the water along both Olivehurst and Seventh avenues and directing flows to the existing Clark Lateral located on Seventh Avenue. (See Exhibit No. 2.) The drainage facilities shall consist of all pipes, manholes, drain entrances, flapgates, etc. required to handle the runoff from a 10-year storm event.

### **3.4 DESIGN CRITERIA**

The rainfall/runoff computer model used in this plan is the Texas State Department of Highways and Public Transportation - Texas Hydraulic System (THYSYS). The THYSYS computer model uses the modified rational method to calculate the runoff from each drainage basin. The THYSYS program also designs the pipe network using a backwater analysis and standard criteria such as minimum two (2) feet per second cleaning velocity, and the Mannings equation. The results for the computer model are provided in the Appendix of this report.

The Olivehurst Avenue Specific Plan land use consists of both commercial and residential. The commercial land use is along Olivehurst Avenue from State Highway 65/70 interchange to the Seventh Avenue intersection. The residential land use is along Seventh Avenue from the Clark Lateral to the Seventh Avenue intersection and also Olivehurst Avenue between Seventh and Eighth. The rational coefficient used for the commercial and residential land uses was .65 and .55 respectively. The commercial land use was considered as neighborhood business not downtown business. Downtown business requires a higher rational coefficient because of the more impervious area associated with parking lots and larger structures. Neighborhood businesses tend to use onsite street parking and have smaller structures which is the case along Olivehurst Avenue.

The Bear River backwater effect on the Olivehurst Avenue Specific Plan is limited because the area tends to be on higher ground than the surrounding areas. However, the backwater





effect needs to be addressed to prevent prolonged flooding.

The 100-year backwater elevation in the community of Olivehurst is approximately elevation 61 according to the Federal Emergency Management Agency. To prevent water from backing into the proposed improvements, a flapgate is proposed at the Clark Lateral outfall. This would allow Olivehurst drainage to enter Clark Lateral but prevents high Clark Lateral flows caused by Bear River backwater from entering into the proposed pipe network.

### **3.5 OTHER IMPROVEMENTS**

Future downstream improvements along the Clark Lateral will be required as construction in the Southern portion of Olivehurst continues to build-out. With the construction of the Olivehurst Interceptor on the east side of Olivehurst, the flow entering the Clark Lateral from south Yuba will be greatly reduced. The flow currently entering Olivehurst from a typical 10-year storm event is approximately 150 cfs. With the reduction of 150 cfs, the proposed flow of approximately 43 cfs for the Olivehurst Avenue Specific Plan can be provided without increasing downstream impacts. As development continues in the southern portion of Olivehurst, channel improvements will be required to maintain the current level of service. It is, however, part of this study estimate to include cleaning of the existing Clark Lateral from Seventh Avenue to McGowan Parkway.

### **3.6 COST OF DRAINAGE IMPROVEMENTS**

The cost of the drainage facilities outlined in this study plan is \$527,000. Major cost items are enumerated in Table 3.1.

The estimated cost of drainage improvements were not separated into Olivehurst Avenue and Seventh Avenue improvements, but instead include facilities for both. Phasing of the storm drainage facilities is not feasible since Olivehurst Avenue improvements are considered the priority. In order to construct Olivehurst Avenue improvements, the drainage facilities need to be constructed in Seventh Avenue.





**Table 3.1**  
**Stormwater System Improvements**  
**Olivehurst Avenue and Seventh Avenue**

| Item                                       | Quantity   | Cost(\$)         |
|--------------------------------------------|------------|------------------|
| 1. 48" Storm Drain Pipe                    | 1,850 L.F. | \$ 129,500       |
| 2. 36" Storm Drain Pipe                    | 990 L.F.   | 54,500           |
| 3. 30" Storm Drain Pipe                    | 660 L.F.   | 29,500           |
| 4. 24" Storm Drain Pipe                    | 1,200 L.F. | 42,000           |
| 5. 18" Storm Drain Pipe                    | 600 L.F.   | 16,500           |
| 6. 15" Storm Drain Pipe                    | 650 L.F.   | 16,000           |
| 7. Storm Drain Manhole                     | 9 Each     | 20,000           |
| 8. Storm Drain Junction D.I.               | 12 Each    | 33,500           |
| 9. Storm Drain Drop Inlet                  | 15 Each    | 12,000           |
| 10. Clark Lateral Cleanup                  | 1 Job      | 20,000           |
| 11. 48" Flap Gate                          | 1 Each     | 3,000            |
| 12. Adjust Existing Sewer & Water Services | 1 Job      | 40,000           |
| Subtotal                                   |            | \$416,500        |
| Contingency at 10%                         |            | 41,500           |
| Total                                      |            | \$458,000        |
| Engineering & Contract Mgt. at 15%         |            | 69,000           |
| <b>TOTAL</b>                               |            | <b>\$527,000</b> |





## CHAPTER 4.0 SUMMARY AND RECOMMENDATIONS

The localized flooding within the Olivehurst Avenue Specific Plan area has been a major concern among the citizens and business owners. For this reason, the proposed drainage improvements should be considered as Phase 1. The proposed drainage improvement cost for the specific plan area is \$527,000. The roadway improvements could then be phased as funding allows. The cost of the roadway improvements for Olivehurst Avenue and Seventh Avenue is \$662,000 and \$563,000 respectively. The offsite parking could then be placed with the roadway improvements as the funding becomes available.

Report for Water

Received Development," September, 1972

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Bulletin No. 195, October 1976





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**REF.****NO. DOCUMENT**

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6. Lampman and Associates, "Olivehurst Drainage Study," October 1973
7. U.S. Army Corps of Engineers, "Linda and Olivehurst Drains, Bear River Basin, California," January 1989
8. Department of Water Resources, State of California Resources Agency, "Rainfall Analysis for Drainage Design, Volume III, Intensity-Duration-Frequency Curves," Bulletin No. 195, October 1976





## APPENDIX B

TEXAS HYDRAULIC SYSTEM

BACKWATER ANALYSIS

OPEN-CHANNEL

(MAXIMUM FLOW)





## TEXAS HYDRAULIC SYSTEM

(BACKWATER ANALYSIS)  
(PIPED SIZED)  
(MAXIMUM FLOW)



```

*****
THYSYS          * THYSYS S/N   : 1393360070      *
TEXAS HYDRAULIC SYSTEM * HMVersion  : 3.31          *
                  * Date       : 7/28/94         *
TEXAS DEPARTMENT OF HIGHWAYS * Time      : 13:18:43      *
AND              * Input file  : 94107#1.thy      *
PUBLIC TRANSPORTATION * Output file : 94107#1.out  *
                  *              *              *
*****

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  x    x    x    x    xxxxx  x    xxxxx

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:::                                     :::
::: Full Microcomputer Implementation :::
:::                                     by   :::
::: Haestad Methods, Inc.             :::
:::                                     ...  :::
::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::

```

37 Brookside Road \* Waterbury, Connecticut 06708 \* (203) 755-1666





E: 7/28/94 TIME: 13:18:43

THYSYS

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:
:
: Storm Drainage Network
: 10 Year Return Period
:   for
: Olivehurst Avenue Specific Plan
: (Tailwater Elevation
: per Lampman Report)
:
:
:

```

SEWER ANALYSIS RUNOFF SEWER FREQUENCY=10 YR94107

COEF DESC A= PARKS B= RES C= COMM. D= SCHOOL E= APRMT. E= ROAD

T COEF .20 .55 .65 .10 .70 .80 MIN TC = 12 .5578.5903.105

A A 1 7.5 T 23 12 3

A B 1 9.0 T 20

C 1 7.4 T 20

D 1 13.3 T 20

A E 1 6.0 1.0 2.0 T 18

A F 1 10.9 T 19

G 1 12.8 T 20

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SGN 1 A 1 B 1 US 59.07 DS 58.51 555 .013 24 CIRC

GN 2 B 1 C 1 US 58.51 DS 57.98 660 .013 30 CIRC

SGN 3 C 1 D 1 US 57.98 DS 57.19 990 .013 36 CIRC

SGN 4 G 1 D 1 US 57.85 DS 57.19 660 .013 24 CIRC

GN 5 D 1 E 1 US 58.19 DS 57.66 660 .013 48 CIRC

GN 6 E 1 F 1 US 57.66 DS 57.15 640 .013 48 CIRC

SGN 7 F 1 M 1 US 57.15 DS 56.70 555 .013 48 CIRC

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AL 2 B 1 C 1 1 30

AL 3 C 1 D 1 1 36

NAL 4 G 1 D 1 1 24

NAL 5 D 1 E 1 1 48

AL 6 E 1 F 1 1 48

NAL 7 F 1 M 1 1 48

ENDATA

94107





E: 7/28/94 TIME: 13:18:44

THYSYS

SEWER

RUNOFF CALCULATIONS

RAINFALL FREQUENCY = 10 YR.

## SURFACE DESCRIPTION OF RATIONAL COEFFICIENTS

| A     | B     | C     | D      | E      | F     |
|-------|-------|-------|--------|--------|-------|
| PARKS | RES   | COMM. | SCHOOL | APRMT. | ROAD  |
| .2000 | .5500 | .6500 | .1000  | .7000  | .8000 |

MINIMUM TIME OF CONCENTRATION = 12.0 MINUTES

E = .557      B = 9.      D = 3.1

| I.D. | CA   | TC    | SUPPLY Q | INTENSITY | TOTAL FLOW |
|------|------|-------|----------|-----------|------------|
| A 1  | 4.88 | 23.00 | .0       | 1.40      | 6.8        |
| B 1  | 5.85 | 20.00 | .0       | 1.49      | 8.7        |
| C 1  | 4.81 | 20.00 | .0       | 1.49      | 7.2        |
| D 1  | 8.64 | 20.00 | .0       | 1.49      | 12.9       |
| E 1  | 4.15 | 18.00 | .0       | 1.57      | 6.5        |
| F 1  | 5.99 | 19.00 | .0       | 1.53      | 9.2        |
| G 1  | 7.04 | 20.00 | .0       | 1.49      | 10.5       |
| M 1  | .00  | .00   | .0       | .00       | .0         |



SEWER

SEWER ANALYSIS

CONFIGURATION DATA

| RUN | U.S. D.S. |     | U.S.      | D.S.      | LENGTH | SLOPE  | BBLs | RISE | SPAN | SHAPE |
|-----|-----------|-----|-----------|-----------|--------|--------|------|------|------|-------|
|     | ID        | ID  | F.L. ELEV | F.L. ELEV |        |        |      |      |      |       |
| 1   | A 1       | B 1 | 57.07     | 56.51     | 555    | .00101 | 1    | 24   | 24   | CIRC  |
| 2   | B 1       | C 1 | 56.01     | 55.48     | 660    | .00080 | 1    | 30   | 30   | CIRC  |
| 3   | C 1       | D 1 | 54.98     | 54.19     | 990    | .00080 | 1    | 36   | 36   | CIRC  |
| 4   | G 1       | D 1 | 55.85     | 55.19     | 660    | .00100 | 1    | 24   | 24   | CIRC  |
| 5   | D 1       | E 1 | 54.19     | 53.66     | 660    | .00080 | 1    | 48   | 48   | CIRC  |
| 6   | E 1       | F 1 | 53.66     | 53.15     | 640    | .00080 | 1    | 48   | 48   | CIRC  |
| 7   | F 1       | M 1 | 53.15     | 52.70     | 555    | .00081 | 1    | 48   | 48   | CIRC  |





# HYDRAULIC DATA

| RUN | U.S.<br>ID | D.S.<br>ID | 'N'  | JUNC<br>LOSS | FLOW  | U.S.<br>HEAD | D.S.<br>HEAD | HYDR.<br>GRAD | DEPTH | VELOC. | PIPE<br>CAPAC. |
|-----|------------|------------|------|--------------|-------|--------------|--------------|---------------|-------|--------|----------------|
| 1   | A 1        | B 1        | .013 | .00          | 6.81  | 60.05        | 59.55        | .00091        | .78   | 2.6    | 7.2            |
| 2   | B 1        | C 1        | .013 | .00          | 13.94 | 59.55        | 58.79        | .00116        | 1.00  | 2.8    | 13.9 **        |
| 3   | C 1        | D 1        | .013 | .00          | 18.86 | 58.79        | 58.00        | .00080        | 1.00  | 2.7    | 18.9 **        |
| 4   | G 1        | D 1        | .013 | .00          | 10.52 | 59.42        | 58.00        | .00216        | 1.00  | 3.3    | 10.5 **        |
| 5   | D 1        | E 1        | .013 | .00          | 34.49 | 58.00        | 57.62        | .00058        | .71   | 3.6    | 40.7           |
| 6   | E 1        | F 1        | .013 | .00          | 37.50 | 57.62        | 57.18        | .00068        | .77   | 3.6    | 40.5           |
| 7   | F 1        | M 1        | .013 | .00          | 42.25 | 57.18        | 56.70        | .00087        | 1.00  | 3.4    | 42.3 **        |





THYSYS  
: 7/28/94 TIME: 13:18:44

TEXAS DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION  
TEXAS HYDRAULIC SYSTEM - 221108  
THYSYS

VER 2.3 JAN 89

- 2 IS PRESSURE FLOW.
- 3 IS PRESSURE FLOW.
- 4 IS PRESSURE FLOW.
- 7 IS PRESSURE FLOW.

E CAPACITY IS BASE ON HGL NOT PIPE SLOPE.



SYS

: 7/28/94 TIME: 13:18:44

THYSYS

## STATIONING

| RUN | UPSTREAM<br>JUNCTION ID | STATIONING |
|-----|-------------------------|------------|
| 1   | A 1                     | 4060       |
| 2   | B 1                     | 3505       |
| 3   | C 1                     | 2845       |
| 4   | G 1                     | 2515       |
| 5   | D 1                     | 1855       |
| 6   | E 1                     | 1195       |
| 7   | F 1                     | 555        |

o - Program terminated.





U.C. BERKELEY LIBRARIES



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